

STATE OF NEW MEXICO
COUNTY OF CHAVES
FIFTH JUDICIAL DISTRICT

FIFTH JUDICIAL DISTRICT COURT
CHAVES COUNTY NM
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Connie Lea Gibson Andrews,
Individually and as Personal
Representative of Tommy Lindell
Andrews, Deceased,

GLORIA MONTOYA
DISTRICT COURT CLERK

Plaintiff,

v.

Case No. D-504-CV-2006-01258
Judge Gary L. Clingman

United States Steel Corporation, et al.,

Defendants.

**COURT'S
FINDINGS OF FACT AND CONCLUSIONS OF LAW**

COME NOW the Court and for its Findings of Fact and Conclusions of Law for the matters taken up at the hearing held on August 18, 2008, states:

FINDINGS OF FACT

BACKGROUND

1. Plaintiff, Connie Lea Gibson Andrews, is a resident of Hagerman, New Mexico, is the surviving widow of Tommy Lindell Andrews ("Mr. Andrews"), and is the Personal Representative of Mr. Andrews.
2. Plaintiff alleges that gasoline and Liquid Wrench contain benzene, and that the benzene in those products caused Mr. Andrews' death in January 2005.
3. Mr. Andrews was initially diagnosed with Refractory Anemia with Ringed Sideroblasts ("RARS"), which, subsequently evolved to Refractory Anemia with Excess Blasts ("RAEB"), and which had or was evolving into acute myelogenous leukemia ("AML"), at the time of Mr. Andrews' death.

COPY

Exhibit E

4. Plaintiff alleges that Mr. Andrews used gasoline purchased from Defendants ConocoPhillips Company ("ConocoPhillips") and Chevron U.S.A. Inc. ("Chevron") for solvent purposes and used Liquid Wrench, a penetrant product, manufactured by Radiator Specialty Company ("RSC"), while working as a farmer and rancher from 1947 to 1971.

5. Benzene is naturally present in both crude oil (from which gasoline is derived) and coal (from which raffinate is derived).

6. Beginning in 1959, records indicate that United States Steel Corporation ("U.S. Steel") sold raffinate to RSC.

7. RSC manufactured and sold two formulations of Liquid Wrench penetrating oil, and the exact formula, ingredients or composition of either formula prior to 1960 is unknown.

8. After 1960, one formulation of Liquid Wrench penetrating oil used raffinate which contained a percentage of benzene ("raffinated Liquid Wrench") and the other formulation did not contain raffinate ("non-raffinated Liquid Wrench").

MOTION TO EXCLUDE DR. MARK NICAS' TESTIMONY AND OPINION

9. The health effects of benzene have been studied for decades and various governmental and non-governmental entities have issued standards for permissible levels of inhaled benzene exposure.

10. The current OSHA Permissible Exposure Level ("PEL") for benzene is 1 part per million ("ppm") in air, averaged over an 8 hour day, referred to as a daily time

weighted average or "TWA". The 1ppm PEL (TWA) is allowed every working day for a 40 year working lifetime, which translates into a 40 ppm-year permissible cumulative exposure to inhaled benzene. A "ppm-year" is the product of a worker's daily TWA levels times the number of years worked. Therefore, a worker exposed to 1 ppm TWA every working day for 40 years has a 40 ppm-year exposure.

11. There is no reliable scientific evidence to indicate that chronic exposure to benzene at the OSHA PEL of 1 ppm in air (40 ppm over a working lifetime) is associated with a quantitative increase in the relative risk of developing MDS or AML.

12. Peer reviewed, published quantitative epidemiology studies of workers chronically exposed to benzene have reported statistically significant elevations in acute myeloid leukemia ("AML") at cumulative exposures of inhaled airborne benzene as low as some point in the range of 45 - 200 ppm-years.

13. Plaintiff designated Dr. Mark Nicas, an industrial hygienist, as her expert to estimate Mr. Andrews' exposure to benzene from Defendants' products.

14. Dr. Nicas produced a report (the "Report") dated May 8, 2008, which Report estimates Mr. Andrews' cumulative inhaled benzene exposure was twenty times lower than the cumulative amount permitted by the OSHA standard over a 45 year work history. Dr. Nicas calculated the exposure as follows:

<u>SOURCE</u>	<u>INHALED</u>	<u>DERMAL (SKIN) ABSORPTION</u>
Gasoline	1.92 ppm yr	45.3 ppm yr
Liquid Wrench	0.30 ppm yr	7.45 ppm yr
Total:	2.23 ppm yr	52.75 ppm yr

15. Eleven fact witness depositions were taken in this case.

16. Dr. Nicas determined that the information in the depositions was insufficient to estimate Mr. Andrews exposures and he requested that the lawyers for Ms. Andrews obtain an affidavit from at least one of the witnesses. Plaintiffs counsel obtained an affidavit from Terry Andrews, Mr. Andrews son, and presented it to Dr. Nicas the night before his deposition -- although it was apparently read to him over the phone earlier that day. Dr. Nicas then produced his report the next day at his deposition. Although Dr. Nicas submitted an Affidavit dated 7/24/08 which tried to refute this, Nicas' Report and deposition testimony establish that Dr. Nicas' Report, in which he estimates Mr. Andrews exposures, is based upon information solely supplied by Terry Andrews in his Affidavit.

17. Dr. Nicas' Report summarizes the types of exposures by Mr. Andrews solely in reliance upon the Affidavit of Terry Andrews dated May 8, 2008 ("Affidavit No. 1"), as follows:

- (i) He experienced an equivalent of 45.3 ppm-years of occupational benzene inhalation exposure due to the dermal absorption of benzene from gasoline during manual cleaning activities;
- (ii) He experienced 1.92 ppm-years of occupational benzene inhalation exposure due to inhaling benzene vapor during manual cleaning activities with gasoline;
- (iii) He experienced the equivalent of 7.45 ppm-years of occupational benzene inhalation exposure due to the dermal absorption of benzene from Liquid Wrench while handling machinery parts wet with this product; and,
- (iv) He experienced 0.30 ppm-years of occupational benzene inhalation exposure due to inhaling benzene vapor during the use of Liquid Wrench.

Dr. Nicas' estimate for the "[t]otal cumulative benzene exposure due to gasoline and

Liquid Wrench was 55 ppm-years" (calculated by adding each of the above figures).

18. There are no regulatory guidelines for occupational exposure based on dermal dose, and the contribution of exposure to benzene via the dermal route has been considered in the development of regulatory standards and guidelines for exposure to benzene.

19. Occupational regulatory standards are based on published studies evaluating the health effects of exposure to benzene. The workers evaluated in those studies have both inhalation and dermal exposure to benzene, but the studies upon which the OSHA standard was based in 1987 calculated inhalation exposures only and did not include a separate dermal dose calculation. By adding a dermal absorption contribution to Mr. Andrews' estimated inhalation exposure (even if the dermal "dose" were accurately calculated), the resulting "total dose" cannot be reliably compared to the benzene inhalation levels associated with the development of disease in the published scientific studies. Only Nicas' total inhalation estimate of 2.22 ppm-years (again, assuming it was accurately calculated) can be compared to the 45 to 200 ppm-years range of exposure which has been associated with the development of disease.

20. The process for modeling dermal exposures has not been validated and there is no reproducible measure of its precision or accuracy.

21. Dermal dose model calculations have no known error rate for solvent mixtures such as gasoline and Liquid Wrench.

22. Dermal exposures are not separately calculated and then added to the inhalation exposure dose by the relevant regulatory authorities, in making estimates of total estimated exposures.

23. Methods to quantify exposures via a dermal route of exposure rely on direct measurement of the chemical at issue, to the extent that the chemical can be measured in the blood or urine utilizing validated methods.

24. There is no standard or validated method for experimentally determining the rate at which solvents or solvent mixtures such as gasoline or Liquid Wrench travel through the skin and into a person's body (referred to as "flux").

25. Flux estimates for benzene have no known error rate, no known reliability, and no known reproducibility.

26. A solvent exposure model based on flux has an unknown error rate and unknown reliability.

27. Gasoline contains concentrations of "substituted benzenes," such as toluene and xylene, as well as alkanes which are typically 50 times the concentration of benzene in gasoline.

28. Studies which have been conducted on relative flux for benzene and other chemicals have reported the dermal flux for toluene to be 30-60 times greater than benzene and that of xylene 11-23 times greater than benzene, and Plaintiff has offered no evidence to the contrary.

29. Using the 50 fold greater than benzene typical concentrations of toluene, xylene and alkanes present in gasoline, and applying the same assumptions and conditions made by Dr. Nicas, Mr. Andrews would have absorbed doses of toluene and xylene alone at approximately 700 to 1000 times greater than his estimated benzene absorption, during the same 2 ½ hour period, which absorption at such concentrations

would have resulted in acute central nervous system toxicity that could not have been tolerated for 24 years of chronic exposure.

30. Dr. Nicas estimated Mr. Andrews' inhalation exposures using an inhalation exposure model. Several published peer reviewed studies, including studies by Dr. Nicas, and others by Defendants' expert, John Spencer, have been conducted in an attempt to validate the inhalation model used by Dr. Nicas. These studies involve running mathematical models to predict what exposures would be expected under specific conditions, and then comparing those results to actual measurements of benzene in the air under the same conditions used in the model. These papers, and the testimony of Mr. Spencer at the hearing, indicate that the inhalation model used by Dr. Nicas has been validated in peer reviewed literature. Dr. Nicas has written in papers discussing dermal modeling that "validated models" could be a useful industrial hygiene tool.

31. Dr. Nicas estimated the dermal benzene absorption using a dermal flux model. He used the Terry Andrews Affidavit for certain information input into the model (amount of surface area of skin exposed, the amount of time exposed etc.). A key element of the dermal flux model Dr. Nicas used is the flux parameter -- i.e. the rate at which benzene is absorbed into the skin. Dr. Nicas' Report refers to studies that have been conducted which found flux parameters ranging from .25 milligrams per cubic meter per hour to as high as 1.85 milligrams per cubic meter per hour. Literature presented at the hearing indicates that flux parameters have been reported at between .1 and 3.0 milligrams per cubic meter per hour. Significantly, Dr. Nicas' Report identified only 1 study, conducted by Hanke in 1961, which analyzed the flux for

benzene in live humans. In that study Hanke put benzene under a glass crystal under the forearms of humans and attempted to measure the flux. That study reported a flux for pure benzene in the human studies of between .4 milligrams per cubic meter per hour. Using a different analytical method also published in that paper, Hanke reported a flux of .24 milligrams per cubic meter per hour. The other studies referenced in Dr. Nicas' Report involved animals, or human cadaver skin from various body parts.

32. The flux Dr. Nicas used in his model to estimate Mr. Andrews' dermal benzene exposures is based on the .4 figure found by Hanke.

33. Several factors can influence flux calculations, including methodological variables (whether live or cadaver skin is used, whether human or animal skin is used and the body part from which skin is obtained) physical skin factors (such as thickness of skin, condition of skin and hairiness of skin), exposure factors (whether the skin is covered (as in Hanke) or in open air, the type of task, the duration of the task, the area of skin involved) and chemical variables (such as molecular weight, the solubility of the chemical in water, the presence of other chemicals in the mixture which might impact the relative absorption and metabolization of the chemicals at issue and the irritancy of the chemical mixture). A significant limitation on the existing publications regarding dermal flux is the failure of the various papers to methodologically address the variables discussed above and identify the impact of such variables on flux.

34. Unlike the inhalation model discussed above, the dermal flux model used by Dr. Nicas has not been validated. Peer reviewed literature has not been published which establishes that the modeled results will consistently match the results reached under actual test conditions.

35. With respect to the flux parameter used by Dr. Nicas, (the .4 figure from the Hanke paper): (i) Dr. Nicas cannot explain how the difference between the pure benzene used in the Hanke paper and the solvent mixtures in the gasoline and Liquid Wrench were accounted for in his model (in fact he testified he did not bother to research whether different flux parameters were reported in the literature for gasoline); (ii) Dr. Nicas cannot explain what the error rate for the use of the Hanke flux parameter is; and (iii) Dr. Nicas cannot identify a single paper since 1961 which replicated the results found by Hanke in his 1961 paper.

36. Dr. Nicas' Report cites one peer reviewed published study which calculated dermal exposures using a dermal flux model. In that study, which involved a retrospective assessment of workers exposed to benzene in a rubber plant, reported in two separate papers: (i) no description of the error rate was provided; (ii) the total dose assessment was significantly revised between the initial publication and the subsequent publication; (iii) the authors report flux with ranges differing by thirty fold; and (iv) after using a flux parameter of .4 in the 1992 paper, the authors selected a range of between .2 and .4 in the subsequent 2003 paper because they believed the earlier flux figure was perhaps too high (although they did not cite any new literature which caused them to use different numbers in the subsequent study).

37. Calculating dermal exposures, and then adding them to inhalation exposures as Dr. Nicas has done, is not a generally accepted practice in the industrial hygiene community. It is neither recommended nor required by OSHA or NIOSH. While research is ongoing regarding the dermal exposure models, the AIHA (cited by Dr. Nicas) finds that other methods, such as biological monitoring are the best practices to

assess dermal exposures.

38. Dr. Nicas admitted in a deposition that during his entire career as a practicing industrial hygienist, he had never calculated a dermal exposure.

39. Testimony at the hearing indicates that a way to validate the dermal flux model would be to identify the variables which impact flux, run tests which biologically determine the benzene absorption rate, and then compare the modeled results to the actual measured results. This has never been done, and until it has been done, the error rate of the dermal flux model will remain unknown.

40. Thus, the dermal flux model utilized by Dr. Nicas has not been tested (as the inhalation model has been tested); thus, there is no known error rate for the model (and in particular for the flux parameter portion of the model). Further, as evidenced by the numerous methodologies used in the flux studies which have been conducted, Dr. Nicas is unable to identify any controlling standards or procedures for discussing studies to determine flux, or for how to utilize flux parameters in dermal dose models. Finally, calculating dermal exposures using a dermal flux model is also not generally accepted in the industrial hygiene community.

41. Dr. Nicas' dermal exposure calculation is also flawed as it relies on a paper by Maibach to increase Mr. Andrews' dermal dose by 500%. Maibach found that in monkeys whose stratum corneum layer of skin had been completely ripped off, benzene absorption increased by 500%. Dr. Nicas, based on Terry Andrews' Affidavit, determined that Mr. Andrews' skin was also damaged and therefore increased his calculations of Mr. Andrews' dermal dose by 500%.

42. The Maibach paper itself stated that its results should not be applied to

human exposure conditions in the absence of further research. Dr. Nicas cites no research to support how the Maibach findings would apply in humans.

43. Dr. Nicas makes no effort in his Report or deposition to describe how he believes Mr. Andrews' skin condition was similar to or different from the monkeys' skin in the Maibach paper.

44. The unreliability of Dr. Nicas estimates is further illustrated by the reality check of considering what other chemical exposure to mixtures of solvents Mr. Andrews would have suffered had his estimates been correct.

45. Defendants submitted the Affidavit of Dr. Richard Irons, a toxicologist who discussed the acute health effects Mr. Andrews would have suffered had Dr. Nicas exposure estimates been correct.

46. Although Dr. Nicas admitted in his deposition that he did not know which version of Liquid Wrench Mr. Andrews used, Dr. Nicas based his entire Report on the unverifiable assumption that Mr. Andrews used only Refined Liquid Wrench, which contained benzene.

47. Dr. Nicas rendered an Affidavit dated July 24, 2008 wherein he states that he relied on Terry Andrews' Affidavit No. 2 (dated July 22, 2008) to conclude that the Liquid Wrench used by Mr. Andrews was not the "formulation that did not contain benzene."

48. Regarding Terry Andrews' Affidavit No. 1, Dr. Nicas testified in his deposition that he needed more specificity than was available in the depositions to calculate a dermal exposure.

49. Dr. Nicas ignored evidence that some of the Liquid Wrench used did not

contain benzene, as Mr. Andrews' brother, Archie Andrews, testified that only aerosol (i.e., non-benzene containing) Liquid Wrench was used.

50. Dr. Nicas relies solely on Terry Andrews' Affidavit No. 1 to establish Mr. Andrews' "high-end use" of gasoline and Liquid Wrench, and not the deposition testimony of Terry Andrews or the other eleven fact witnesses.

51. Dr. Nicas ignores Terry Andrews' Deposition testimony that the Liquid Wrench can he saw Mr. Andrews use did not contain a skull and crossbones, so would not have been Raffinated Liquid Wrench, which contained benzene.

AFFIDAVITS OF TERRY ANDREWS

52. Terry Andrews' Affidavit executed May 8, 2008 ("Affidavit No. 1"), contradicts his prior deposition testimony in numerous respects.

53. Terry Andrews' Deposition indicates that Mr. Andrews would use $\frac{1}{4}$ to $\frac{1}{2}$ cup (2 ounces to 4 ounces) of gasoline to pour on a rag for solvent purposes, and that he would have no way of telling whether or not Mr. Andrews used half a pint (8 ounces) of gasoline every time he used gasoline for solvent purposes. His Affidavit No. 1 contradicts this by stating that Mr. Andrews used at least 8 ounces of gasoline every time he poured gasoline on a rag for solvent purposes.

54. Terry Andrews' Deposition states that he did not know how many times Mr. Andrews cleaned parts in a tray of gasoline. His Affidavit No. 1 contradicts this by stating that Mr. Andrews cleaned parts by soaking them in a tray of gasoline approximately once a week (52 times per year).

55. Terry Andrews' Deposition states that he cannot think of a specific instance where Mr. Andrews ever had Liquid Wrench drip on his skin or face, and that if

it did drip on his skin or face, it would have been wiped off immediately, because as he recalled, it irritated your skin. This is contradicted by his Affidavit No. 1 which states that Mr. Andrews would get the Liquid Wrench all over the palm side of both of his hands, and that it would remain on his hands for at least 15 minutes at a time each and every time Liquid Wrench was used.

56. Terry Andrews' Deposition states that 150 ounces of Liquid Wrench would be used per year on the farm by all employees. This is contradicted by his Affidavit No. 1 which states that Mr. Andrews alone would use an ounce of Liquid Wrench 4 times a week, for a total of 208 ounces per year.

57. Terry Andrews' Deposition states that during times when he would use gasoline as a solvent to wash off his hands, that it would make his hands really irritated and painful, and that he would try to find a place where he could wash them off as quickly as he could. This is contradicted by his Affidavit No. 1 which states that Mr. Andrews would keep both hands covered in gasoline for 15 minutes at a time every day, sometimes twice a day.

58. Terry Andrews' Deposition states that he could remember there being writing on the can of Liquid Wrench, but he could not recall what it said, or even reading it. His second Affidavit, dated July 22, 2008 ("Affidavit No. 2") contradicts this by stating that he recalled the container of Liquid Wrench Mr. Andrews used as not having the word "deodorized" on it.

59. The can of Liquid Wrench identified by Terry Andrews in his Affidavit No. 2 as the can like the one Mr. Andrews used is stamped as being from 1950, 4 years prior to Terry Andrews' birth.

60. There is no evidence that Liquid Wrench manufactured in 1950 or prior thereto contained benzene.

MOTION TO EXCLUDE DR. FRANK GARDNER'S TESTIMONY AND OPINIONS

61. Mr. Andrews' treating hematologist-oncologist, Dr. Barbara L. McAneny, a founder of the New Mexico Hematology-Onocology Consultants in Albuquerque, New Mexico, reviewed Mr. Andrews' bone marrow slides and diagnosed Mr. Andrews with refractory anemia with ringed sideroblasts ("RARS").

62. Mr. Andrews' treating doctors at the Scott & White Clinic in Temple, Texas reviewed Mr. Andrews' bone marrow slides and diagnosed Mr. Andrews with RARS.

63. Defendants' expert witness, Dr. Ethan Natelson obtained and reviewed Mr. Andrews' bone marrow slides for 7/13/99 and 10/22/04 and diagnosed Mr. Andrews with RARS.

64. Dr. Natelson demonstrated to the Court during his August 18, 2008 hearing through photographs which he took of Mr. Andrews' bone marrow slides that there were well over 15% ringed sideroblasts on representative fields of Mr. Andrews' 10/22/04 bone marrow slides.

65. Defendants' expert witness, Dr. Richard Irons, obtained Mr. Andrews' bone marrow slides for 7/13/99 and 10/22/04 and reviewed those slides on March 24, 2008. Based upon his observation of "a prominent population" of sideroblasts, Dr. Irons diagnosed Mr. Andrews with RARS. May 27, 2008.

66. Dr. Irons observed 50-60% ringed sideroblasts in representative fields on Mr. Andrews bone marrow slides when he reviewed those slides.

67. Plaintiff's only medical causation expert witness, Dr. Frank Gardner, did not review Mr. Andrews' bone marrow slides before reaching his opinions about the disease from which Mr. Andrews suffered.

68. The diagnosis of RARS, a very specific type of MDS, cannot be made without reviewing bone marrow slides.

69. Dr. Gardner's testimony during his deposition regarding whether Mr. Andrews had RARS was equivocal. Dr. Gardner first testified that Mr. Andrews "absolutely" did not have RARS. Dr. Gardner then testified that he couldn't say one way or the other whether Mr. Andrews had RARS or not because he had not reviewed Mr. Andrews' bone marrow slides.

70. After his May 15, 2008 deposition, Dr. Gardner reviewed Mr. Andrews bone marrow slides and concluded that Mr. Andrews had refractory anemia with excess blasts in transformation ("RAEBt") or acute myeloid leukemia ("AML").

71. Dr. Gardner also has stated that he counted ringed sideroblasts on Mr. Andrews' 7/14/99 and 10/22/04 bone marrow slides and that in certain areas of the slides which he observed and reported on, he counted 2% ringed sideroblasts on the 7/13/99 slide and 6% ringed sideroblasts on the 10/22/04 slide.

72. RARS, RAEB, RAEBt are each subtypes of myelodysplastic syndrome ("MDS"). RARS can often evolve into RAEB, RAEBt and AML. In some cases, RAEB evolves from RARS. In other cases, RAEB is the initial diagnosis and does not evolve from RARS.

73. Dr. Natelson and Dr. Irons have testified that Mr. Andrews had RARS which evolved to RAEB and RAEBt and at the time of his death, either had evolved or was evolving into AML.

74. Dr. Gardner acknowledges that Mr. Andrews' bone marrow slides reflect that "he had ringed sideroblasts."

75. Plaintiff has offered two Affidavits from Dr. Gardner's which:

- (a) do not specifically state that Mr. Andrews did not have RARS;
- (b) do not address the question of whether RARS sometimes evolves into RAEB, RAEBt or AML or whether it did in Mr. Andrews' case;
- (c) do not state that Dr. Gardner evaluated representative fields on Mr. Andrews' bone marrow slides in reaching his opinions or in counting ringed sideroblasts.

76. Dr. Gardner relied solely on the Affidavit of Dr. Mark Nicas for quantitative exposure information with regard to any exposure of benzene to Mr. Andrews from gasoline and/or Liquid Wrench.

77. Plaintiff has offered no scientific or medical studies, literature or expert testimony in which the development of RARS, RAEB, RAEBt and/or any type of MDS or AML has been causally associated with exposure to gasoline, Liquid Wrench or mixed solvents similar to Liquid Wrench. In fact, Dr. Gardner was not aware of any scientific study in which a worker population exposed to gasoline developed MDS of any kind at a statistically significant excess.

78. Dr. Irons and Dr. Natelson have testified that the reliable medical and scientific literature does not demonstrate that exposure to gasoline, Liquid Wrench or mixed solvents similar to Liquid Wrench causes RARS, RAEB, RAEBt and/or any type of MDS or AML.

79. The only evidence before the Court with regard to the exposure level to benzene which has been reported to cause AML among workers chronically exposed to benzene is the testimony of Dr. Natelson that some peer reviewed, published

quantitative epidemiology studies of workers have reported statistically significant elevations in acute myeloid leukemia ("AML") at cumulative exposures of inhaled airborne benzene as low as some point in the range of 45 - 200 ppm-years.

80. Dr. Gardner has acknowledged that some autoimmune disorders have been associated with the development of MDS and that "lupoid hepatitis," the very disease diagnosed in Mr. Andrews by his treating physicians, is an alternative cause for MDS.

81. Dr. Natelson has offered the opinion that the MDS seen in Mr. Andrews could relate to his long history of auto-immune disease and its therapy.

82. Dr. Gardner has testified that Plaquenil was a drug which Mr. Andrews "was on [for] a long period of time."

83. Dr. Gardner has testified that he doesn't know whether Plaquenil or hydroxychloroquine is a cause of MDS. Therefore, Gardner could not have considered that drug as a possible alternative cause of Mr. Andrews' disease.

84. MDS has been reported in the scientific literature among patients, such as Mr. Andrews, with long term Plaquenil or hydroxychloroquine therapy.

85. Dr. Gardner did not adequately consider alternative causation possibilities for Mr. Andrews' disease, including the association with age, autoimmune disorders such as those Mr. Andrews' treating doctors diagnosed or some of the drugs which were prescribed for Mr. Andrews.

86. Dr. Gardner's opinion that Mr. Andrews did not have RARS was flawed and unreliable in that he did not follow the proper medical and scientific methodology which he and the defense expert witnesses have testified is necessary to determine whether a person has RARS before reaching that opinion. Specifically, unlike Mr.

Andrews' treating doctors and Defendants' experts who all diagnosed Mr. Andrews' disease as RARS, Dr. Gardner did not examine and evaluate Mr. Andrews' bone marrow slides as until long after he reached his opinion and testified that Mr. Andrews did not have RARS.

87. Dr. Gardner was completely unfamiliar with medical and scientific literature in which the authors have specifically evaluated whether benzene-exposed workers developed the RARS subtype of MDS, including studies published by Dr. Ruiz regarding a group of workers in Brazil who were exposed to large amounts of benzene, and by Dr. Irons regarding a group of benzene exposed people in China, as well as a review article on the subject published by Dr. Natelson. In fact, as Dr. Gardner admitted in his deposition, he was not "aware of any epidemiologic study or even an isolated case report that associates refractory anemia with ringed sideroblasts with exposure to benzene."

88. The scientific and medical literature in which the authors have addressed the question of whether exposure to benzene causes RARS, including scientific studies by Dr. Ruiz, a study in China conducted by Dr. Hayes and other National Cancer Institute scientists, a study by Dr. Irons in China and a review of the scientific literature by Dr. Natelson, does not demonstrate that such exposure causes RARS, whether of the type which evolves into RAEB, RAEBt or AML or of the type that remains RARS.

89. Based on the uncontradicted evidence before the Court, there is no reliable scientific evidence or literature that exposure to gasoline, Liquid Wrench, mixed solvents similar to Liquid Wrench or even benzene exposure has been demonstrated to cause RARS.

90. There are no scientifically valid studies to support the onset of a hemapoietic disease caused by benzene, gasoline and/or Liquid Wrench after over 33 years since the last claimed exposure.

Having made the foregoing Findings of Fact, this Court concludes as follows:

CONCLUSIONS OF LAW

1. This Court has jurisdiction over the parties hereto and the subject matter hereof.
2. Venue is proper in Chaves County, New Mexico.
3. In order for an expert witness' testimony to be admissible it must be reliable. The purpose of Rule 11-702, which governs the admission of expert testimony is "to assist the trier of fact to understand the evidence and to determine the issues of fact." Scientific evidence can only assist the trier of fact if it is grounded in valid, objective science and is reliable enough to prove what it purports to prove. Under the Rules the trial judge must insure that any and all scientific testimony or evidence admitted is not only relevant, but reliable. Evidentiary reliability is the hallmark for the admissibility of scientific knowledge.
4. It is well established that a plaintiff in a toxic tort case must prove that he or she was exposed and injured by a harmful substance manufactured by the defendant. A plaintiff must demonstrate the levels of exposures that are hazardous to human beings generally as well as the plaintiff's actual level of exposure to the defendant's toxic substance before he or she may recover. Where the information relied upon by the expert with respect to levels of exposure is mere guesswork, that testimony is unreliable, and should be excluded.

5. Scientific knowledge of the harmful level of exposure to a chemical plus knowledge that plaintiff was exposed to such quantities are minimal facts necessary to sustain plaintiff's burden in a toxic tort case. Guesses, even if educated, are insufficient to prove the level of exposure in a toxic tort case.

6. Exclusion of a plaintiff's experts is proper when the experts reach their ultimate conclusions before studying the available literature, and an expert's opinion that is not substantiated by scientific studies and available literature will not suffice.

7. New Mexico has adopted the sham affidavit doctrine. If an affidavit conflicts in significant ways with prior deposition testimony, a court may disregard the affidavit as an attempt to create a sham fact issue.

8. The testimony of Terry Andrews contained in his Affidavit No. 1 relating to exposure amounts and duration of exposure by Mr. Andrews was not consistent with his deposition testimony and should be disregarded under the sham affidavit doctrine.

9. The testimony of Terry Andrews contained in the Affidavit No. 2 was not consistent with statements made in his deposition and therefore should be disregarded under the sham affidavit doctrine.

10. To survive a defendant's motion for summary judgment in a toxic tort case, the plaintiff is required to offer admissible expert testimony showing that an exposure to the chemicals at issue caused the disease at issue.

11. The establishment of specific causation by demonstrating the probability that the toxin in question caused the illness also involves weighing the possibility of other causes of the illness.

12. The testimony and opinion of Dr. Nicas is based upon insufficient facts or

data to support his exposure estimates, and therefore is unreliable and is excluded.

13. The methodology utilized by Dr. Nicas to arrive at his exposure estimates for Mr. Andrews is not scientifically valid, or reliable, and is excluded.

14. There is insufficient evidence of the levels of benzene and frequency of exposure by Mr. Andrews to gasoline and Liquid Wrench to support any claim that either one of these substances caused the disease that caused his death.

15. Dr. Gardner's opinion that Mr. Andrews did not have RARS was flawed and unreliable in that he did not follow the proper medical and scientific methodology which is necessary to determine whether a person has RARS. Dr. Gardner did not examine and evaluate Mr. Andrews bone marrow slides until long after he reached his opinion and testified that Mr. Andrews did not have RARS.

16. Dr. Gardner's testimony that Mr. Andrews did not have RARS is not reliable. He reached this conclusion in total disregard of the diagnosis of RARS made by the treating physicians of Mr. Andrews at Scott & White Clinic in Temple, Texas, and the same diagnosis made by his treating physician, Dr. Barbara McAneny, at Presbyterian Hospital in Albuquerque, New Mexico.

17. Dr. Gardner's testimony that Mr. Andrews' disease was caused by benzene is not reliable. Dr. Gardner failed to consider other alternative theories of causation, such as the autoimmune disorder such as those Mr. Andrews' treating doctors diagnosed, the Plaquenil and other drugs prescribed for Mr. Andrews, or the dioxin to which Plaintiff claimed Mr. Andrews was exposed and was a cause of his death.

18. Dr. Gardner's testimony that benzene caused the disease from which Mr. Andrews died is not reliable, and is as there is no scientifically reliable evidence to support that RARS, as a precursor to refractory anemia with excess blasts in transformation ("RAEB") and Acute Myelogenous Leukemia ("AML") is linked to benzene exposure.

19. There is no reliable scientific evidence or literature that exposure to gasoline, Liquid Wrench, mixed solvents similar to Liquid Wrench or even benzene exposure has been demonstrated to cause RARS.

20. Dr. Gardner's testimony that benzene caused the disease from which Mr. Andrews died is not reliable. There is no scientifically valid evidence to support that benzene in gasoline or in Liquid Wrench can cause the onset of a disease over 30 years after the last claimed exposure.

All other tendered Findings of Fact and Conclusions of Law not consistent herewith are rejected.


GARY L. CLINGMAN
District Judge

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a true and correct copy of the foregoing was mailed to counsel on the 16th day of September, 2008:

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